

- 1.** A method of indexing a substrate relative to a printhead between printing transverse scans of the printhead, the method comprising:

indexing the substrate to move the substrate longitudinally an incremental distance; measuring the actual distance moved by the substrate during the indexing and determining from the measuring the difference between the actual distance moved by the substrate and the incremental distance; and in response to the difference, adjusting the longitudinal position of the printhead.

- 2.** The method of claim 1 wherein:

the indexing of the substrate is carried out by driving a feed element an amount predetermined to move the substrate longitudinally the incremental distance through a printing station.

- 3.** The method of claim 1 further comprising:

scanning transversely with the printhead in the adjusted longitudinal position.

- 4.** The method of claim 1 further comprising:

scanning transversely with the printhead in the adjusted longitudinal position; then, further indexing the substrate longitudinally the incremental distance modified by the amount that the longitudinal position of the printhead was adjusted.

- 5.** The method of claim 1 further comprising:

the measuring the actual distance moved by the substrate includes measuring the distance relative to a fixed frame of a printing machine.

- 6.** The method of claim 1 further comprising:

the measuring the actual distance moved by the substrate includes measuring the distance relative to the longitudinal position of the printhead.

**7. A method of ink jet printing comprising:**

ink jet printing, with a printhead at a printing station, a first row of an image transversely across a substrate that is stationary at a printing station;

then, feeding the substrate longitudinally through the printing station in response to a feed signal from a controller that is representative of a given feed distance, and measuring the actual distance that the substrate moves longitudinally when so fed;

then, calculating, as a correction distance, the difference between the given feed distance and the measured actual distance;

then, moving the printhead longitudinally the correction distance;

then, ink jet printing a further row of the image transversely across a substrate, with the substrate stationary at a printing station.

**8. The method of claim 7 further comprising:**

further feeding the substrate longitudinally through the printing station in response to a feed signal from the controller, the feed signal being representative of a given feed distance less the calculated correction distance.

**9. The method of claim 7 further comprising:**

after printing the further row of the image, moving the printhead longitudinally to bring the printhead to a reference position;

further feeding the substrate longitudinally through the printing station in response to a feed signal from the controller that is representative of the given feed distance less the calculated correction distance and adjusted distance.

**10. The method of any of the above method claims wherein:**

the adjusting includes moving the printhead longitudinally in the direction of the indexing when the incremental distance is greater than the actual distance and is in a direction opposite the direction of the indexing when the incremental distance is less than the actual distance.

**11.** The method of any of the above method claims wherein:

the ink jet printing is carried out with the printhead moving transversely across a bridge and the printhead is moved longitudinally by moving the bridge relative to a fixed frame.

**12.** The method of any of the above method claims wherein:

the ink jet printing is carried out with the printhead moving transversely across a bridge and the printhead is moved longitudinally by moving the printhead relative to the bridge.

**13.** An ink jet printing apparatus comprising:

a frame;

a bridge extending transversely across the frame and defining a printing station;

a motion system configured to move the printhead longitudinally relative to the frame;

a feed system configured to advance a substrate longitudinally through the printing station;

a printhead moveable transversely across the bridge to print a row of the image across the substrate at the printing station;

a controller operable to activate the feed system to perform an indexing motion of the substrate longitudinally through the printing station;

a web position measurement device operable to measure and communicate to the controller a signal corresponding to an actual distance moved by the substrate during the indexing motion; and

the controller being operable to activate the motion system to move the printhead longitudinally a distance corresponding to the difference between actual distance moved by the substrate during the indexing motion and a predetermined distance.

**14.** The apparatus of claim 13 wherin:

the bridge is longitudinally moveable relative to the frame by the motion; and  
the controller is operable to activate the motion system to move the bridge  
longitudinally relative to the frame to thereby move the printhead longitudinally  
the distance corresponding to the difference between actual distance moved by  
the substrate during the indexing motion and a predetermined distance.

**15.** The apparatus of claim 14 wherein:

the motion system includes a linear servo motor having a longitudinally extending  
stator fixed to the frame and an armature fixed to the bridge and responsive to the  
controller.

**16.** The apparatus of claim 13 wherein:

the printhead is longitudinally moveable relative to the bridge by the motion; and  
the controller is operable to activate the motion system to move the printhead  
longitudinally relative to the bridge to thereby move the printhead longitudinally  
the distance corresponding to the difference between actual distance moved by  
the substrate during the indexing motion and a predetermined distance.

**17.** The apparatus of any of claims 13 through 16 wherein:

the web position measurement device includes an encoder responsive to the motion  
of the substrate relative thereto.

**18.** The apparatus of any of claims 13 through 17 wherein:

the web position measurement device is fixed to the frame.

**19.** The apparatus of any of claims 13 through 17 wherein:

the web position measurement device is fixed to the bridge.